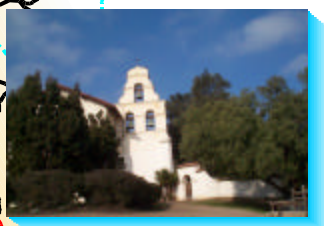
Intelligent Transportation Systems (ITS) involve the use of advanced computer, electronic, and communication technologies to increase the safety and efficiency of the entire surface transportation system.

What is the Strategic Plan?

The Central Coast ITS Strategic Plan is a road map for the implementation of ITS or technology-based strategies within the Central Coast Region of California.



The Strategic Plan:

- Provides a vision for the deployment of ITS through-out the Region
- Identifies a range of near- and long-term strategies
- Defines an "architecture" or framework to help facilitate the coordination and integration of the various ITS elements.

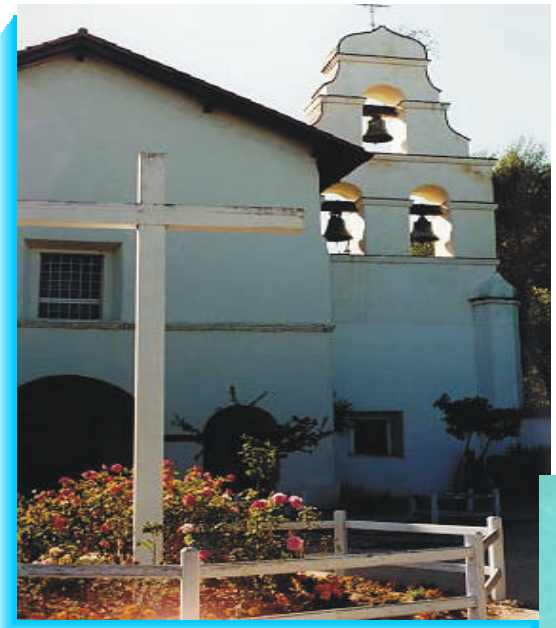
How was the Strategic Plan Developed?

Development of the Central Coast ITS Strategic Plan is a joint effort. Oversight of the Strategic Plan was accomplished through the ITS Steering Committee. The ITS Steering Committee consists of the following members:

- *California Highway Patrol (CHP)*
- *Caltrans District 5*
- *Caltrans New Technology & Research Program*
- *Federal Highways Administration (FHWA)*
- *Federal Transit Administration (FTA)*
- *Association of Monterey Bay Area Governments (AMBAG)*
- *Council of San Benito County Governments (SBCOG)*
- *San Luis Obispo Council of Governments (SLOCOG)*
- *Santa Barbara County Association of Governments (SBCAG)*
- *Santa Barbara Metropolitan Transit District (SBMTD)*
- *Santa Cruz County Regional Transportation Commission (SCCRTC)*
- *Transportation Agency for Monterey County (TAMC)*

Spring 2000

Why is ITS Important to California and the Central Coast?



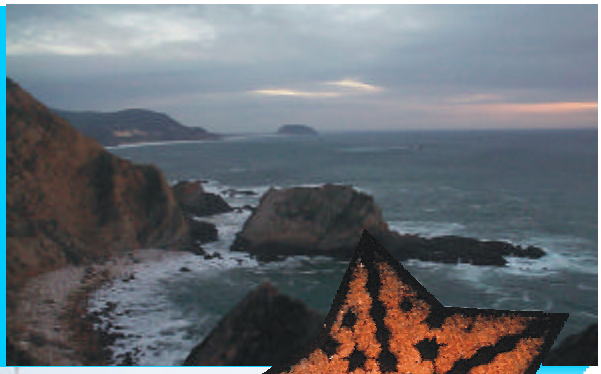
How Can ITS Help?

As transportation funds become more limited and population demands increase, we need to find ways of getting more out of our existing transportation system. Wise use of ITS technologies will help us to maximize our initial transportation investment and make more informed decisions for the future.

What are the Existing and Future Challenges?

ITS offers the potential to address many of the Region's existing and future transportation challenges. Some of the challenges that were identified by representatives of the various affected agencies include:

- Further enhance roadway and motorist safety
- Provide real-time information to travelers
- Better manage traffic safety along congested roadways
- Better coordinate incident/emergency response activities
- Increase transit system efficiency and accessibility
- Enhance and upgrade the communications network



ITS Benefits and Successes - What Can We Expect?

Implementation of ITS over the last few years has led to significant benefits throughout the Nation such as:

- Reductions in vehicle emissions and fuel consumption
- Travel time savings
- Accident rate reduction
- Improved transit customer services
- Increased roadway capacity

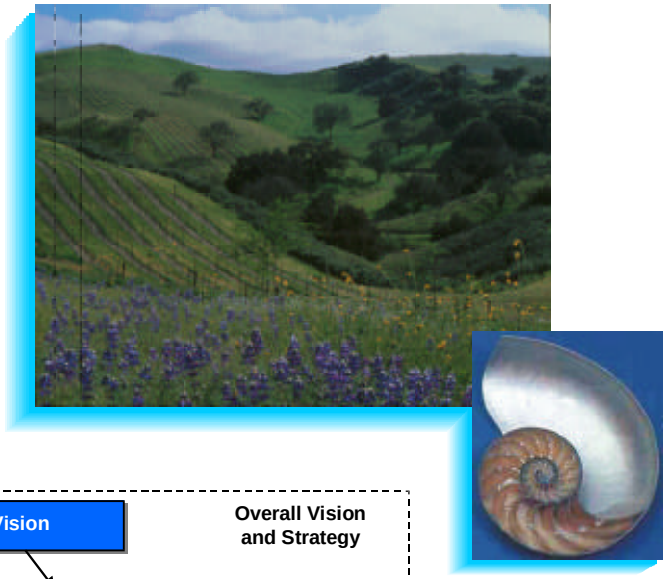
The actual benefits achieved by the Central Coast will depend on a number of factors, such as congestion levels and the extent of ITS system coverage.

Where Are We Going?

Existing ITS Applications:

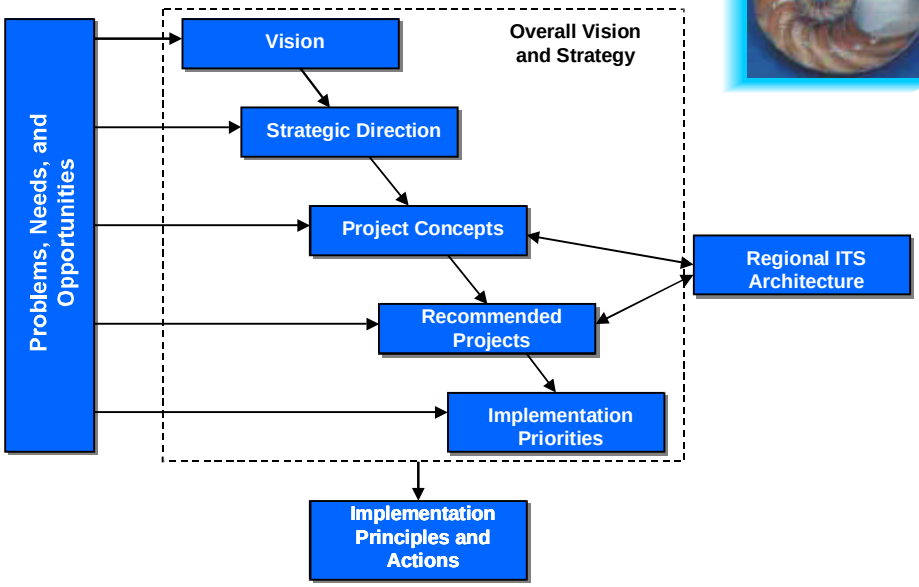
Existing ITS applications in the Central Coast Region are the "building blocks" of a regionally, integrated Intelligent Transportation System. These elements include:

- Closed Circuit Television cameras (CCTV)
- Roadway sensors to monitor traffic flow
- Interconnected traffic signal control systems
- Highway Advisory Radio (HAR)
- Roadside motorist aid call boxes
- Signal priority for emergency vehicles
- Internet/kiosk-based traveler information systems
- Changeable Message Signs (CMS)



Progression from Vision to Projects

We can think of the overall ITS strategy for the Central Coast in terms of a progression from a vision to priorities for project implementation. A *vision* is a statement of what we want to do with ITS in the Central Coast. A *project* is a location-specific ITS strategy or application. *Implementation priorities* tell us which projects to deploy earlier than others.



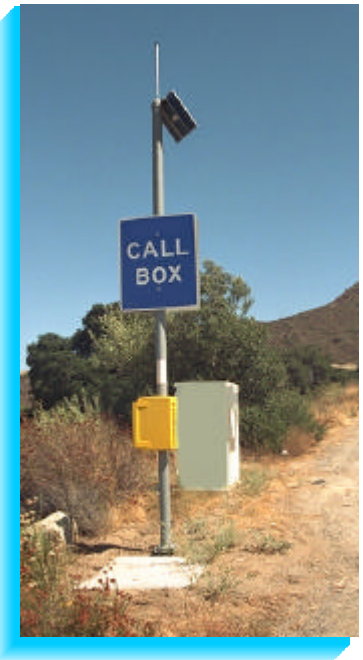
The ITS Strategic Direction for the Central Coast Region:

- Development of a Transportation Management Center (TMC) to coordinate Regional ITS Activities such as:
  - Monitor traffic flow & roadway conditions
  - Control ramp meters to improve traffic flow
  - Serve as a focal point for regional multi-modal traveler information
  - Improved coordination:
    - Incident management
    - Special events
    - CHP/Caltrans dispatching
    - Other TMCs
- Increase the availability & quality of multi-modal traveler information
- Provide a consistent “smart” card approach for transit, parking, & toll system use
- Expand cellular phone coverage
- Enhance CHP & emergency response radio systems
- Use the Internet to share information
- Expand the motorist aid call box system
- Improve traffic flow along arterial roadways through signal upgrades & coordination strategies.

Recommended Projects

Motorist Aid Call Boxes

Description	Benefits	Sample Locations
♦ Call boxes help motorists-in-distress by providing a direct connection to a CHP communications center ♦ The California Call Box Program is a motorist-aid system operating along major roadways throughout the State ♦ The programs are administered at the county level by local Service Authorities for Freeways & Emergencies (SAFEs)	♦ Improves traveler safety & security (i.e., motorists in distress can receive roadside help in a more timely manner) ♦ Motorists can report various types of incidents more quickly (e.g., accidents, car breakdowns, roadside hazards, etc.) ♦ Improves emergency & incident response activities	♦ Existing installations: ♦ Santa Cruz Co.: ♦ SR 1 ♦ San Luis Obispo Co.: ♦ US 101, SR 1, SR 41, SR 46, & SR 166 ♦ Santa Barbara Co.: ♦ US 101, SR 1, SR 154, & SR 166 ♦ Planned installations: ♦ Monterey Co.: ♦ US 101, SR 1, & SR 68 ♦ San Benito Co.: ♦ SR 25 & SR 156



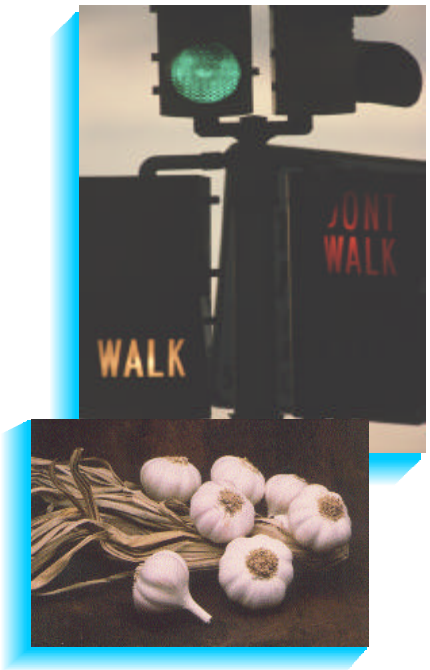
Network Surveillance
(CCTV, Sensors, & Smart Call Boxes)

Description	Benefits	Sample Locations
♦ System of detection and/or surveillance devices that monitor roadway conditions to assist in operational & management decisions. Common elements: ♦ CCTV (Closed Circuit Television) cameras that provide video images of the roadway ♦ Roadway Sensors that measure traffic volumes, occupancy, speed, etc. ♦ Smart Call Boxes use existing call boxes equipped with roadway and/or weather detection devices	♦ Improves the ability to monitor/collect roadway conditions (i.e., more accurate, reliable, & timely data/information) ♦ Improves ability to identify and/or verify incidents ♦ Helps an agency operator better manage the roadway ♦ Serves as the foundation to provide traveler information to the public ♦ Improves emergency & incident response activities ♦ Reductions in response times ♦ Improves ability to identify incident locations	♦ CCTV ♦ Existing installations: ♦ Cities of Santa Cruz & Santa Barbara ♦ Caltrans (SR 17 & US 101 @ SR 156) ♦ Planned installations: ♦ Central Coast Agencies (along major roadways) ♦ Roadway Detectors (Planned): ♦ Central Coast Agencies (along major roadways) ♦ Smart Call Boxes (Planned): ♦ Central Coast Agencies (at select County call box locations)

Recommended Projects

Traffic Signal Control (Surface Streets)

Description	Benefits	Sample Locations
♦ Provides the ability to modify signal timings at surface street intersections in response to changing roadway conditions ♦ Advanced applications include interconnected or synchronized signals along a roadway ♦ Central control systems include upgraded signal controllers & advanced system monitoring & control capabilities ♦ Other applications include signal priority (for transit & emergency vehicles) & advanced crosswalks	♦ Travel time reductions from 8% to 20% ♦ Delay reductions from 15% to 44% ♦ Emission reductions ♦ Carbon Monoxide (CO) (5% to 13%) ♦ Hydrocarbon (HC) (4% to 10%) ♦ Fuel consumption reductions from 6% to 12% ♦ Vehicle stop reductions from 22% to 41% ♦ Travel speed increases from 14% to 22%	♦ Major surface streets & highways (Central Coast) ♦ Santa Barbara Co.: ♦ Carrillo Blvd. ♦ City of Santa Barbara ♦ Monterey Co.: ♦ SR 183 (Salinas) ♦ City of Monterey ♦ San Benito Co.: ♦ SR 25 & SR 156 (near Hollister) ♦ Santa Cruz Co.: ♦ SR 152 (near Watsonville) ♦ City of Santa Cruz ♦ San Luis Obispo Co.: ♦ SR 227 ♦ SR 1



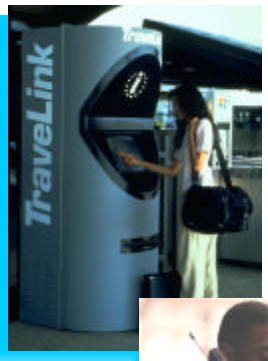
Ramp Metering (Freeways)

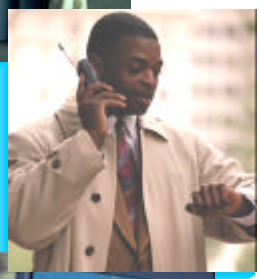
Description	Benefits	Sample Locations
♦ Traffic signals located upstream from the merge point of an on-ramp with a freeway, which control the flow of vehicles onto the freeway ♦ Typically involves the use of roadway sensors & software programs to balance the number of vehicles allowed onto the freeway vs. the number of vehicles already on the freeway	♦ Travel time reductions from 20% to 48% ♦ Capacity increases from 3% to 5% ♦ Accident rate reductions from 15% to 50% ♦ Fuel consumption reductions approximately 41% ♦ Travel speed increases from 8% to 60%	♦ Existing applications: ♦ US 101 @ SR 156 (Monterey Co.) ♦ US 101 @ Garden St. (Santa Barbara Co.) ♦ Planned applications: ♦ US 101 (Santa Barbara & Santa Maria areas in Santa Barbara Co.) ♦ US 101 (San Luis Obispo area in San Luis Obispo Co.) ♦ US 101 (Salinas area) & SR 1 (Monterey area) in Monterey Co. ♦ SR 1 & SR 17 (Santa Cruz area in Santa Cruz Co.)

Recommended Projects

En-Route Traveler Information Systems (CMS & HAR)

Description	Benefits	Sample Locations
♦ Roadside devices that provide en-route traveler information to passing motorists at key decision points. Common elements: ♦ CMS (Changeable Message Signs) are electronic message boards at strategic locations that display dynamic information in an illuminated manner ♦ HAR (Highway Advisory Radio) involves the broadcast of location-specific information via the car radio (typically on AM with a 1-mile range)	♦ Improves ability to provide traveler information to the public (i.e., more accurate, reliable, & timely) ♦ Improves ability to notify & "re-route" travelers around upcoming roadway incidents (e.g., congestion, accidents, roadway closures, etc.) ♦ Travel time reductions of approximately 17 minutes In incident conditions ♦ Fuel consumption reductions from 6% to 12% ♦ Delay reductions up to 1900 vehicle-hours per incident ♦ Hydrocarbon (HC) emission reductions of approx. 33%	♦ CMS ♦ Existing installations: ♦ Santa Cruz Co. (SR 1 & SR 17) ♦ City of Monterey (Washington Ave.) ♦ Planned installations: ♦ Santa Barbara, Monterey, & SLO Co. ♦ Caltrans [US 101 @ SR 154 (North)] ♦ HAR ♦ Existing installations: ♦ Cities of Santa Cruz & Monterey ♦ Planned installations: ♦ Santa Barbara, Monterey, & SLO Co.





Interactive Traveler Information Systems (Internet, Kiosks, & Telephone Call-In Systems)

Description	Benefits	Sample Locations
♦ Interactive devices providing access to traveler information (typically used before a trip is taken). Common elements ♦ Internet Websites ♦ Kiosks at strategic locations (e.g., rest areas, transit terminals, hotels, etc.) that can be accessed thru keyboard or touchscreen user inputs & the Internet) ♦ Telephone call-in systems that provide menu-based options based on caller inputs (i.e., "punch-in" specific numbers on phone)	♦ Improves provision of traveler information to the public (i.e., more accurate, reliable, & timely) ♦ Improves ability to notify & "re-route" travelers around roadway incidents ♦ Improves ability to better plan trips (i.e., route, mode, & time choices) ♦ Travel time reductions of approximately 17 minutes in incident conditions ♦ Fuel consumption reductions from 6% to 12% ♦ Delay reductions up to 1900 vehicle-hours per incident ♦ Hydrocarbon (HC) emission reductions of approx. 33%	♦ Internet Websites: ♦ Existing installations: ♦ Caltrans ♦ CHP ♦ San Luis Obispo Co. ♦ Planned enhancements to existing systems ♦ Kiosks: ♦ Existing installations: ♦ Santa Cruz MTD ♦ Santa Barbara MTD ♦ Planned enhancements to existing systems ♦ Telephone call-in systems: ♦ Existing installations: ♦ Caltrans 1-800 427-ROAD ♦ Planned enhancements to existing systems

Recommended Projects

Transit Management Systems (AVL, Smart Cards, & Maintenance Systems)

Description	Benefits	Sample Locations
♦ Applications to increase transit safety, efficiency, ridership, & performance. Elements include: ♦ AVL (Automated Vehicle Location) systems that track a vehicle's location in real-time & compare against schedule/route ♦ Smart Cards (a form of electronic fare payment) (e.g., debit, credit, etc.) ♦ System maintenance applications use on-board sensors to monitor vehicle diagnostics, etc.	♦ Improves: ♦ Transit system efficiency through better schedule adherence ♦ Ability to provide riders with real-time transit information ♦ Ability to manage fare collection & financial accounting systems ♦ Transit system reliability & maintenance efficiencies ♦ Travel time reductions from 15% to 18% ♦ Service reliability increases from 12% to 23% ♦ Security improvements - incident response time reduced to 1 minute	♦ AVL Systems (Planned): ♦ Santa Cruz MTD ♦ Santa Barbara MTD ♦ San Luis Obispo Regional Transit Authority (SLORTA) ♦ Monterey-Salinas Transit (MST) ♦ Other transit agencies (Long-term) ♦ Smart Cards (Planned): ♦ Santa Barbara MTD ♦ SLORTA ♦ Other transit agencies (Long-term) ♦ System maintenance (Planned): ♦ Other transit agencies (Long-term)

Central Coast Regional Transportation Management Center (TMC)

Description	Benefits	Sample Locations
♦ TMC (Transportation Management Center) is a physical building/facility that provides a framework to coordinate transportation-related data collection, processing, control, & information dissemination activities ♦ The focus of the TMC will be on operational & informational decision-making for the region's roadways ♦ TMC would coordinate the ITS systems & activities (described previously) such as traffic signal control, ramp meters, CCTV, etc.	♦ Provides a focal point for roadway operations & incident management activities in the Central Coast Region ♦ Serves as a clearinghouse to provide real-time traveler information to the public (i.e., congestion & incident locations, alternate routes, roadway closures, etc.) ♦ Travel time reductions from 10% to 42% (due to incident management) ♦ Fatality reductions of approx. 10% in urban areas (due to incident mgmt.) ♦ Incident response time reductions from 5 to 7 minutes	♦ A TMC that would serve the entire Central Coast Region is supported by all agencies ♦ The TMC would be jointly operated by Caltrans District 5 & the CHP ♦ Other Central Coast agencies would be connected to the TMC & have various monitoring & control capabilities & functions ♦ The TMC would be located in the San Luis Obispo area, initially at the CHP Communications Center ♦ The Caltrans District 4 TMC (in the Bay Area) would have primary responsibility for SR 17 in Santa Cruz County

Additional Information

Central Coast Architecture How Do Projects Fit Together?

- ***What Is It?*** It is a framework or "blueprint" that guides ITS implementation so that systems are compatible and operations are coordinated.
- ***What Is It Made Of?*** It consists of a series of diagrams that show the relationships between ITS projects, systems, and responsible agencies.
- ***Why Is It Useful?*** The Regional ITS Architecture developed for the Central Coast will ensure that ITS projects are coordinated with other systems and that they are eligible for Federal funding.

Ongoing Activities What's Next?

- The Central Coast ITS Coordinating Group will guide ITS project planning and implementation activities.
- The Group will meet as necessary to provide input on ITS project design, deployment, and integration issues and to assess the extent to which the Strategic Plan has been implemented.
- The Group will initially include representatives from Caltrans, CHP, regional planning agencies for each county, AMBAG, transit agencies, Air Pollution Control Districts, FHWA, and FTA.

Plan Implementation: How Will We Get There?

- ***Why Is Implementation Important?*** The full benefit of ITS is realized when a project or system is actually deployed and day-to-day operations, maintenance, and management activities are successfully provided. *Planning is only the 1st step…*
- ***How Will Implementation Be Accomplished?*** Implementation of ITS projects will occur to the extent that lead agencies take the initiative to develop, procure, deploy, and fund specific initiatives. In order to accomplish this, project sponsors need a set of guidelines to follow that instruct them on the technical, institutional, and financial steps to take in the successful execution of an ITS project -- the Central Coast ITS Strategic Plan.

TRANSCORE

VRPA TECHNOLOGIES

How Can I Get More Information?

- ***For more information about ITS in your County, please call an ITS Coordinator at:***
  Santa Cruz (831) 460-3200
  San Benito (831) 636-4170
  Monterey (831) 755-4834
  San Luis Obispo (805) 781-4219
  Santa Barbara (805) 568-2546
- ***For more information about ITS in the Central Coast Region, please call:***
  AMBAG (831) 883-3750
  Caltrans District 5 (805) 549-3664
  CHP (916) 657-7222
  FHWA (916) 498-5005